

**Management Advisory Report:
Progress Has Been Made in Developing
Transition to Support Guidance
for Modernization Projects**

August 2002

Reference Number: 2002-20-146

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DEPARTMENT OF THE TREASURY
WASHINGTON, D.C. 20220

INSPECTOR GENERAL
for TAX
ADMINISTRATION

August 2, 2002

MEMORANDUM FOR DEPUTY COMMISSIONER FOR MODERNIZATION &
CHIEF INFORMATION OFFICER

A handwritten signature in cursive script, reading "Pamela J. Gardiner".

FROM: Pamela J. Gardiner
Deputy Inspector General for Audit

SUBJECT: Final Management Advisory Report - Progress Has Been Made
in Developing Transition to Support Guidance for Modernization
Projects (Audit # 200220014)

This report presents the results of our review of the process for transferring support and maintenance of deployed modernization projects, known as transition to support. The objective of this review was to determine whether planning and preparation is adequate to timely and effectively transfer support and maintenance of Business Systems Modernization (BSM) projects to the Internal Revenue Service (IRS) support organizations.

In summary, we found that the IRS, in conjunction with the Computer Sciences Corporation, developed the Enterprise Life Cycle (ELC) that provides guidance for designing, developing, and supporting BSM projects. Although the ELC provided guidance on transition to support activities, the guidance was not clearly organized and did not address all activities recommended by the Software Acquisition Capability Maturity Model.¹ In addition, BSM project teams were not consistently following the transition to support guidance in the ELC. We found significant variances in planning transition to support activities in four current BSM projects.

To address these shortcomings, the IRS is establishing a Transition Management Office (TMO) to provide transition to support policy and guidance to BSM project teams and IRS organizations designated to support the BSM projects. The TMO has drafted guidance to provide a comprehensive and organized source for planning and

¹ The Software Acquisition Capability Maturity Model was developed by the Software Engineering Institute and is a widely recognized industry standard for effectively and efficiently developing computer projects and systems. Both the IRS and the Computer Sciences Corporation intend to use the Software Acquisition Capability Maturity Model as their standard for developing BSM projects.

completing transition to support activities. The draft guidance provides direction for developing transition to support plans and directs BSM project teams to develop these plans earlier in the projects' design phase. The draft guidance addresses most of the gaps that exist between the ELC and the Software Acquisition Capability Maturity Model. The TMO also plans to review BSM projects to ensure the project teams are consistently following the transition to support guidance and will work with the IRS operating divisions to ensure they are capable and ready to support and maintain the BSM projects once they are deployed.

Because the TMO is working toward addressing the transition to support problems identified, we are not providing any additional recommendations at this time. However, we suggest you consider the issues identified in this report to help in your efforts to further improve the transition to support processes, which will be a major step in improving the overall acquisition management capabilities of the IRS.

Management's Response: The Deputy Commissioner for Modernization & Chief Information Officer responded that he appreciated our insights into and review of this critical area and plans to incorporate our suggestions into the transition to support processes and documents. Management's complete response to the report is included as Appendix V.

Copies of this report are also being sent to the IRS managers who are affected by the report. Please contact me at (202) 622-6510 if you have questions or Scott Wilson, Assistant Inspector General for Audit (Information Systems Programs), at (202) 622-8510.

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Background

The Internal Revenue Service (IRS) selected the Computer Sciences Corporation to serve as the Prime Systems Integration Services Contractor (PRIME) for the Business Systems Modernization (BSM) program. The IRS and the PRIME contractor developed the Enterprise Life Cycle (ELC) that provides guidance for designing, developing, and supporting BSM projects.

The ELC establishes a set of repeatable processes and a system of reviews that promote delivery of promised business results. The ELC processes are in line with the Software Engineering Institute's Software Acquisition Capability Model Maturity Model (SA-CMM).¹ The SA-CMM is a widely recognized and adopted framework for improving software and system acquisition processes.

Transition to support (T2S) is identified as one of the SA-CMM key process areas and is included as part of the ELC. The intent of T2S is to provide a disciplined transition of the BSM projects being developed to the IRS organization responsible for their long-term support and maintenance. All BSM project teams need T2S activities to take place in order to successfully transfer the projects to the IRS. The goal of T2S activities is to ensure the support organizations are fully prepared to accept responsibility for supporting and maintaining the projects and related products.

In November 2001, the Deputy Commissioner for Modernization & Chief Information Officer requested that we review the T2S efforts. In response, we performed this audit to determine whether planning and preparation is adequate to timely and effectively transfer support and maintenance of BSM projects to the IRS support organizations.

¹ The SA-CMM was developed by the Software Engineering Institute and is a widely recognized industry standard for effectively and efficiently developing computer projects and systems. Both the IRS and the Computer Sciences Corporation intend to use the SA-CMM as their standard for developing BSM projects.

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To accomplish our objective, we reviewed available documentation and interviewed PRIME contractor staff and IRS executives, managers, and analysts located at the IRS' National Headquarters and at the Modernization, Information Technology, and Security (MITS) Services offices in New Carrollton, Maryland. We performed these reviews between February and May 2002, in accordance with the President's Council on Integrity and Efficiency's *Quality Standards for Inspections*. Detailed information on our objective, scope, and methodology is presented in Appendix I. Major contributors to the report are listed in Appendix II.

Improved Transition to Support Guidance Has Been Developed

The MITS Services organization is establishing the Transition Management Office (TMO) to provide T2S policy and guidance to BSM project teams and the MITS organization designated to support and maintain the deployed projects. The TMO developed a transition management approach to partner with the PRIME contractor's Business Transformation Office to oversee, integrate, and provide an IRS-wide view of T2S processes. The TMO has also produced a draft transition management guidance document that provides templates and planning guidance for T2S activities. This document clarifies existing ELC processes and incorporates additional interim guidance developed by the MITS Services organization.

The draft transition management guidance provides a comprehensive and organized source for planning T2S activities. It addresses most of the existing gaps between the ELC and SA-CMM standards, and it directs BSM project teams to develop T2S plans earlier in the projects' life cycle. The BSM Office's Solutions Acquisition Process Group is currently reviewing this guidance. Once approved, the TMO plans to issue the new guidance as a program-wide directive that must be implemented by BSM project teams prior to a project's Development Phase.

In addition to providing T2S guidance to the BSM project teams and the MITS Services organization, the TMO also plans to provide transition management guidance to other IRS operating divisions and functions. The TMO will act as a facilitator to involve and inform entities at the executive

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Transition to Support Guidance Can Be Enhanced to Improve Compliance with the Capability Maturity Model

and strategic level that have a stake in transition management.

While the TMO's draft guidance on T2S activities addresses most of the gaps between the existing ELC processes and the SA-CMM key process areas, there are still two SA-CMM activities that are not included in the ELC and not fully addressed by the TMO's draft guidance, as follows:

- *Responsibility for the software products is transferred only after the software support organization demonstrates its capability and capacity to modify and support the software products.²*
- *The project team conducts activities to ensure that support of the software products is maintained and is effective during the transition from the contractor to the software support organization.*

The current ELC and draft T2S guidance include planning activities to make the necessary resources and training available to the support organizations. However, to address the SA-CMM framework, the TMO needs to consider producing guidance that directs T2S activities to actually demonstrate (test) the MITS Services organizations' capability and capacity to operate and maintain the BSM projects. Testing the MITS Services organization's capability and capacity would provide the IRS assurance that appropriate operating experience and adequate resources exist to support a project's processes prior to the hand-off from the developer. Appendix IV provides a comparison of the SA-CMM framework to the ELC and draft T2S guidance.

Without guidance requiring plans to include tests of the MITS Services organization's capability and capacity, the project teams risk the ability to effectively and efficiently transfer control of the projects. The MITS Services organization may not be ready to accept control of the

² Expanding beyond just the software products, the IRS broadens the SA-CMM definition of T2S to include *all* BSM projects and related products being acquired including hardware, software, related documentation, and training.

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Following Transition Management Office Guidance Will Help Project Teams Plan Effective Transition to Support Activities

projects when they are deployed, which could either delay the projects or increase project costs by requiring the IRS to pay the PRIME contractor to support and maintain the deployed projects until the MITS Services organization is ready to accept control.

Management Actions: The TMO indicated that Version 2.0 of the draft transition management guidance, which is in process, would include procedures to assess T2S readiness of the project teams and the MITS Services organization.

We reviewed the T2S planning activities in the following BSM projects:

- Customer Account Data Engine (CADE) - CADE will create current, complete, and accurate authoritative data stores containing taxpayer accounts and tax returns and construct the related tax administration system processes.
- Security and Technology Infrastructure Release (STIR) - The system infrastructure is envisioned as a combination of custom software modules and commercial-off-the-shelf hardware, software, and security solutions, integrated to create the foundation for a secure, modernized IRS infrastructure. The STIR project objective was to deliver the first installment of the modernized technology infrastructure and security services for the 2002 Filing Season.
- Internet Refund/Fact of Filing (IRFOF) - The IRFOF project will allow taxpayers to access tax return filing and refund information with a secure Internet connection.
- Filing and Payment Compliance (F&PC) - The F&PC project will provide the IRS with the ability to manage its accounts receivables more effectively and significantly increase tax collection.

The T2S plans were not developed as early in the above projects' life cycles as prescribed by the ELC, and the T2S plans and activities were not timely included in the task

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orders³ issued to the PRIME contractor for specific work products.

Project teams did not develop T2S plans early in the project life cycle

ELC guidance directs that T2S activities should begin early in a project's life cycle and that these activities should be performed in accordance with a T2S plan. The project teams did not develop T2S plans early in the life cycles of the four projects we reviewed. Rather, the projects delivered T2S plans after the completion of the Vision and Strategy and Architecture phases of the ELC.

For the MITS Services organization to be ready and able to maintain the work products that have been developed, it is important that the project teams consider available MITS Services organization resources from project inception. This planning activity allows for an awareness of what is being designed and developed and identifies the necessary preparations and resources for the MITS Services organization to be able to provide the required support upon assumption of responsibility.

The status of T2S plan development for the four projects reviewed was as follows:

- The CADE project team is currently developing a Release 1 pilot but is not scheduled to produce a T2S plan until the development of Release 2 in 2003. However, the PRIME will maintain the CADE project until it is transferred to the IRS after the deployment of Release 5 scheduled for 2006.
- The STIR project team completed its Vision and Strategy and Architecture phases in April 2000 without a T2S plan. The T2S plan was first presented as a Deployment Phase deliverable in January 2002.

³ A task order is an order for services placed against an established contract. The IRS issues task orders to the PRIME contractor for delivery of specific project products and services.

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- The IRFOF project team began the Development Phase in August 2000, but the T2S plan was not delivered until September 2001.
- The F&PC project team is scheduled to address T2S plans and activities in its Organizational Transition Plan after completing the Vision and Strategy and Architecture phases and before beginning the Development Phase in August 2002.

Project teams did not timely include T2S plans and activities in task orders

One of the ELC requirements is that T2S plans and activities are required in issued task orders. In the four projects we reviewed, we found that the T2S plans and activities were not timely included in task orders issued to the PRIME contractor. The CADE project does not have a task order for T2S plans for the reasons mentioned above.

- The STIR project team did not task a T2S plan until June 2001, when it was added as a deliverable subsequent to the Development Phase.
- The IRFOF project team did not require a T2S plan deliverable until a task order modification was signed in May 2001 to add it as a deliverable.
- The F&PC project team did not require any T2S plans or activities in its task order. The project team is scheduled to address T2S plans in the project Development Phase in August 2002.

Inconsistency in T2S planning and task order development can be attributed to varying interpretations of existing guidance. The guidance recommends developing T2S plans at the beginning of a project and then reviewing the progress of the plans at three later points in the life cycle. Various project teams interpreted this guidance to mean that T2S plans and task order development need not be initiated until the Development Phase of the ELC, instead of at the beginning of the project. There was also some confusion in interpreting the T2S process, which spans the entire life cycle, with the actual deployment and transition of a project, which is the final phase of the life cycle.

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The absence of T2S plan requirements in task orders issued to the PRIME contractor could result in delays in transferring BSM projects to the IRS. Also, delivery of T2S plans late in the project life cycle can affect the ability to execute transition activities in time for a seamless transition to the MITS Services organization. Delays may require the PRIME contractor to operate and maintain the deployed projects until the MITS Services organization has the resources and trained personnel available to receive the projects.

Management Actions: The TMO plans to issue T2S policy and guidance that is more clearly defined and communicated to allow for consistent and effective T2S planning and execution. Future inconsistencies in the timing of T2S planning and contract tasking should be overcome with the issuance of the pending transition management guidance document and the TMO's involvement with the BSM project teams.

Management's Response: The Deputy Commissioner for Modernization & Chief Information Officer responded that he appreciated our insights into and review of this critical area and plans to incorporate our suggestions into the transition to support processes and documents.

Detailed Objective, Scope, and Methodology

The objective of this review was to determine whether planning and preparation is adequate to timely and effectively transfer support and maintenance of Business Systems Modernization (BSM) projects to the Internal Revenue Service (IRS) support organizations. This process is known as the transition to support (T2S) process.

- I. Assessed the status and adequacy of the T2S planning and preparation guidance compared to industry standards and procedures.
 - A. Compared the T2S planning and preparation guidance in the IRS' Enterprise Life Cycle (ELC)¹ to the Software Engineering Institute's Software Acquisition Capability Maturity Model (SA-CMM).²
 - B. Assessed the extent to which the IRS' Integration Management Office draft T2S plan template and related T2S guidance supplements existing T2S planning and preparation guidelines.
 - C. Assessed the scope and content of the IRS' Transition Management Office draft T2S guidance for the BSM project teams.
- II. Reviewed the adequacy of task orders and T2S plans of four BSM projects³ to determine if necessary T2S planning and preparation activities were present.
 - A. Determined if the selected projects have adequate provisions in the task orders for developing T2S plans and implementing T2S activities.
 - B. Determined if the selected projects have adequate T2S plans for project teams to transfer modernized products to the receiving IRS support organization.

¹ The ELC establishes a set of repeatable processes and a system of reviews that reduce the risks of system development on BSM projects.

² The SA-CMM was developed by the Software Engineering Institute and is a widely recognized industry standard for effectively and efficiently developing computer projects and systems. Both the IRS and the Computer Sciences Corporation intend to use the SA-CMM as their standard for developing BSM projects.

³ The four projects reviewed were the Customer Account Data Engine, Security and Technology Infrastructure Release, Internet Refund/Fact of Filing, and Filing and Payment Compliance.

Major Contributors to This Report

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Appendix III

Report Distribution List

Commissioner N:C
Deputy Commissioner N:DC
Associate Commissioner, Business Systems Modernization M:B
Chief, Information Technology Services M:I
Deputy Associate Commissioner, Program Management M:B:PM
Chief Counsel CC
National Taxpayer Advocate TA
Director, Legislative Affairs CL:LA
Director, Office of Program Evaluation and Risk Analysis N:ADC:R:O
Office of Management Controls N:CFO:F:M
Audit Liaison:
 Associate Commissioner, Business Systems Modernization M:B
 Chief, Information Technology Services M:I

**Comparison of the Software Acquisition Capability Maturity Model Framework
with the Enterprise Life Cycle Transition to Support Guidance
and Draft Transition Management Guidance**

CF¹	Software Acquisition Capability Maturity Model	Addressed in Enterprise Life Cycle Guidance?	Addressed in Draft Transition Management Guidance?
G1	The project team ensures the software support organization has the capacity and capability to provide the required support upon assumption of responsibility for the support of the software products.	Yes	Yes
G2	There is no loss in continuity of support to the software products during transition from the contractor to the software support organization.	Yes	Yes
G3	Configuration management is maintained throughout the transition.	Yes	Yes
C1	The acquisition organization has a written policy for the transfer of software products to the software support organization. This policy typically specifies that: 1. The software support organization is identified prior to developing the solicitation package. 2. Resources for software support are included in the appropriate budget(s). 3. The designated software support organization is involved, as appropriate, throughout the acquisition.	Yes	Yes

¹ CF stands for Common Feature. The Common Features of a SA-CMM key process area (as is transition to support) are as follows: Goals (G); Commitment to perform (C); Ability to perform (Ab); Activities to perform (Ac); Measurement and analysis (M); and Verifying implementation (V).

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C2	The acquisition organization ensures that the software support organization is involved in planning for transition to support.	Yes	Yes
C3	Responsibility for transition to support activities is designated.	Yes	Yes
Ab1	A group that is responsible for coordinating transition to support activities exists.	Yes	Yes
Ab2	Adequate resources are provided for transition to support activities. (Resources include funding, staff, equipment, and tools.)	Yes	Yes
Ab3	The organization responsible for providing support of the software products is identified no later than initiation of the solicitation package's development.	Yes	No
Ab4	The software support organization, prior to transition, has a complete inventory of all software and related items that are to be transferred.	Yes	Yes
Ab5	Individuals performing transition to support activities have experience or receive training.	Yes	No
Ab6	The members of organizations interfacing with the transition to support activities receive orientation on the salient aspects of transition to support activities.	Yes	Yes

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Ac1	<p>The project team performs its activities in accordance with its documented transition to support plans. The plans typically cover:</p> <ol style="list-style-type: none"> 1. The objectives and scope of the transition to support activities. 2. Identification and involvement of the software support organization. 3. Support resource requirements. 4. A definition of transition activities. 5. A schedule of transition activities. 6. Allocation of transition responsibilities. 7. Installation of products that are to be delivered. 8. Warranty and data rights provisions. 	Yes, except for item #7	Yes, except for item #8
Ac2	<p>Responsibility for the software products is transferred only after the software support organization demonstrates its capability and capacity to modify and support the software products.</p> <p>This capability typically includes the availability of:</p> <ol style="list-style-type: none"> 1. Hardware, software, physical, fiscal, and personnel resources. 2. Plans, processes, procedures, and documentation. 3. An established configuration management system capable of supporting the software. 4. Appropriate training of all personnel involved. 5. Software replication, test, and distribution capabilities. 	No	No

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Ac3	The project team conducts activities to ensure that support of the software products is maintained and is effective during the transition from the contractor to the software support organization.	No	No
Ac4	The project team oversees the configuration control of the software products throughout the transition.	Yes	Yes
M1	Measurements are made and used to determine the status of the transition to support activities and resultant products.	Yes	Yes
V1	Transition to support activities are reviewed by acquisition and software support organizations' management on a periodic basis.	Yes	Yes
V2	Transition to support activities are reviewed by the project manager on both a periodic and event-driven basis.	Yes	Yes

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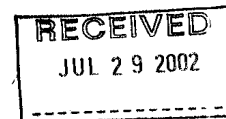
Appendix V

Management's Response to the Draft Report



DEPARTMENT OF THE TREASURY
INTERNAL REVENUE SERVICE
WASHINGTON, D.C. 20224

July 29, 2002



MEMORANDUM FOR TREASURY INSPECTOR GENERAL FOR TAX ADMINISTRATION

FROM:

John C. Reece
John C. Reece
Deputy Commissioner for Modernization &
Chief Information Officer

SUBJECT:

Draft Management Advisory Report: Progress Has Been
Made in Developing Transition to Support Guidance For
Modernization Projects (Audit No. 200220014)

The Business Systems Modernization (BSM) program will fundamentally transform the way the IRS manages information and delivers service. The program has already implemented new systems that provide taxpayers with secure, easy, and more convenient access to information and more efficient service.

Last year, we improved the efficiency and effectiveness of our systems for responding to taxpayer calls through our Customer Communications 2001 project. Revenue agents are using new software that quickly and accurately calculates the tax computation in very complex tax return cases. This year, we are continuing to deliver the critical infrastructure for modernized systems and improved service to taxpayers, such as:

- An Internet service that allows taxpayers to check on the status of their refunds
- The first release of the common integrated technical infrastructure to support and enable the delivery of modernized business systems
- A modernized individual taxpayer database that will pilot a selected set of taxpayer returns; this will begin the replacement of our old returns processing system and database of taxpayer records

The BSM program brings together best practices and expertise in the business and technology sectors to develop world-class tax administration systems that fulfill the IRS mission and serve taxpayer needs and expectations. Implementing robust Transition Management (TM) is both timely and important to the BSM program because the ability to successfully transition modernization projects from their development environment to the appropriate IRS organization to use and maintain will be key to realizing the modernization vision. As efforts of development, process reengineering, employee

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education and training, and budget planning converge, effective transition-to-support will be critical.

In response to lessons learned from the initial BSM projects, the IRS established an organization dedicated to transition management to work directly with the PRIME contractor to ensure smooth transitions. As noted in your report, we have made significant progress in aligning internal customers, developing and communicating standards, positively impacting existing projects, and applying recognized software acquisition standards to the TM Guidelines. We reviewed current transition plans to help us develop thorough transition plans for BSM projects in progress to ensure their successful implementation with as little adverse impact on the planned schedules as possible.

1. We released version 1.0 of the TM Guidelines for all BSM projects. We will include these guidelines in the Enterprise Life Cycle.
2. We scheduled and baselined revisions of the TM Guidelines to include recognized standards of the Software Engineering Institute's capability maturity model criteria for TM.
3. We planned later releases of the TM Guidelines to include additional guidance for the IRS operating divisions and the ITS organization. We will baseline version 2.0 of ITS requirement guidelines into one integrated version.

We are committed to a fully compliant and functional TM process for the MITS services organization. I appreciate your insights and review of this critical area and plan to incorporate your suggestions into our processes and documents to achieve our mutual goals. If you have any questions, please contact me at (202) 622-6800, or Stan Ratcliffe, Director of Business Planning and Assurance, at (202) 283-5395.